

CLAIMS

Sub B1

1. An interposer-forming clad plate for use in a semiconductor device manufactured by press-bonding a copper foil material and a nickel foil material at a rolling reduction of 0.1 to 3%.

2. An interposer-forming clad plate for use in a semiconductor device manufactured by press-bonding a copper foil material having nickel plating on one surface or both surfaces and other copper foil material or a copper foil material having nickel plating on one surface at a rolling reduction of 0.1 to 3%.

3. A clad plate as defined in claim 1 or 2, wherein the clad plate comprises five layers of copper/nickel/copper/nickel/copper.

4. An interposer for use in a semiconductor device in which a clad plate as defined in any one of claims 1 to 3 is etched selectively to form connecting bumps with a semiconductor chip and a wiring layer, the semiconductor chip and the wiring layer are connected by way of the semiconductor chip connection bumps using anisotropically conductive adhesives and conduction of the interposer in the direction of the thickness is taken by way of a columnar conductor formed by etching.

5. A method of manufacturing an interposer for use in a semiconductor device, which comprises laminating a copper foil material to form a conductor layer or the like and a nickel foil or nickel plating to form an etching stop layer, press-bonding them

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Sub B2

at a rolling reduction of 0.1 to 3% to form an interposer-forming clad layer for use in a semiconductor device, selectively etching the clad plate to form a columnar conductor, forming an insulation layer on the copper foil material to form a wiring layer, and forming a semiconductor chip connection bumps and the wiring layer to the clad plate on the side opposite to the surface for forming the columnar conductor.

6. A method of manufacturing an interposer-forming clad layer for use in a semiconductor device as defined in any one of claims 1 to 3, wherein the interposer-forming clad plate for use in the semiconductor device is formed by previously applying an activating treatment to the bonded surfaces of the copper foil and the nickel foil or nickel plating in a vacuum vessel and then laminating the copper foil and the nickel foil material or nickel plating and cold press-bonding them at a rolling reduction of 0.1 to 3% in which the activating treatment is applied <1> in an inert gas atmosphere at an extremely low pressure of 1×10^1 to 1×10^{-2} Pa, <2> using the nickel plated copper foil material and the copper foil material as one electrode A having the bonding surfaces grounded to the earth, respectively, and conducting glow discharge by applying an AC current at 1 to 50 MHz between it and the other electrode B supported insulatively and <4> applying sputter etching, <3> with the area of the electrode exposed in plasmas caused by the glow discharge being 1/3 or less of the electrode B.

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